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EXAMINER

MILIA, MARK R

ART UNIT

PAPER NUMBER

2622

DATE MAILED: 10/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/783,011

**Applicant(s)**

NAGUMO ET AL.

**Examiner**

Mark R. Milia

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 February 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities: Detailed description of Fig. 15 on page 42 does not include reference to element (S24).  
Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5, 8, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5864263 to Katakura et al.

Regarding claim 1, Katakura discloses an image recording apparatus comprising a plurality of driven elements which are driven for printing of pixels constructing an image (see column 2 lines 57-65), a plurality of driving circuits which drive said driven elements (see column 2 line 57-column 3 line 2), a memory for storing correction data for controlling the driving of each of said driven elements which is executed by said driving circuits (see column 2 lines 29-50 and Fig. 1, Examiner understands that the claimed element indicates intended use of a memory therefore because reference discloses both ROM and RAM, both of which would have the capability to store

correction data, the claimed element is thus anticipated by the reference), and a print controller for temporarily reading out the correction data from said memory and storing prior to a printing operation and transmitting the correction data to said driving circuits after completion of the reading operation of the correction data from said memory (see column 2 lines 29-50 and Fig. 1, Examiner understands that the claimed element indicates intended use of a print controller therefore because reference discloses a printer controller capable reading out and transmitting correction data it is thus anticipated by the reference).

Regarding claim 5, Katakura discloses the apparatus discussed above in claim 1, and further discloses wherein said driven elements are LED elements for emitting recording light (see column 2 lines 57-65).

Regarding claim 8, Katakura discloses an image recording apparatus comprising a plurality of driven elements which are driven for printing of pixels constructing an image (see column 2 lines 57-65), a plurality of driving circuits which drive said driven elements and are partitioned into a plurality of driving groups (see column 2 line 57-column 3 line 2), a CPU for sending control signals through a plurality of control signal lines to said driving circuits of said driving group corresponding to said signal line so as to make said driving circuits operative every group upon printing operation and sending print data to each of said driving circuits through a print data line (see column 2 lines 39-41 and Fig. 1, Examiner understands that the claimed element indicates intended use of a CPU therefore because the reference discloses a CPU capable send control signals to driving circuits the claimed element is thus anticipated by the reference), a memory

for storing correction data for correcting the driving of each of said driven elements (see column 2 lines 41-44 and Fig. 1, Examiner understands that the claimed element indicates intended use of a memory therefore because reference discloses both ROM and RAM, both of which would have the capability to store correction data, the claimed element is thus anticipated by the reference), and an auxiliary memory for temporarily storing said correction data from said memory under a control of said CPU so as to supply said correction data of each of said driven elements stored in said memory to said driving mechanisms prior to the printing operation (see column 2 lines 41-44 and Fig. 1, Examiner understands that the claimed element indicates intended use of a memory therefore because reference discloses RAM, which would have the capability to store correction data, the claimed element is thus anticipated by the reference), wherein said correction data is sent from said auxiliary memory to said driving circuits through said print data lines under a control of said CPU (see column 2 line 39-column 3 line 23).

Regarding claim 11, Katakura discloses the apparatus discussed above in claim 8, and further discloses wherein said control signal lines are strobe signal lines (see column 3 lines 15-19).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katakura as applied to claim 1 above, and further in view of U.S. Patent No. 5959650 to Fukui et al.

Katakura discloses (*claim 2*) driving circuits provided in a head (see column 2 line 57-column 3 line 14) and (*claim 6*) wherein said print controller is constructed so as to be connectable to an external upper apparatus (see column 2 lines 35-37 and Fig. 1) and when a read command of the is received from said upper apparatus, said print controller reads out the data from said memory and transmits it to said upper apparatus (see column 2 lines 47-50 and Fig. 1, reference shows an interface circuit that connects to an external device such as a computer and it is well known that an interface allows data to flow in and out therefore the invention is analogous to the claimed element).

Katakura does not disclose expressly wherein said memory is provided in a head, and said print controller temporarily reads out the correction data from said memory provided in said head and transmits the correction data to the driving circuits provided in the head prior to the printing operation.

Fukui discloses (*claim 2*) wherein said memory is provided in a head (see column 5 lines 27-34, column 6 lines 21-27 and 52-58 and Fig. 2), and said print controller temporarily reads out the correction data from said memory provided in said head and transmits the correction data to the driving circuits provided in the head prior to the

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printing operation (see column 7 lines 24-59), and (*claim 6*) wherein data is correction data (see column 5 lines 27-34 and column 6 lines 21-27).

Katakura & Fukui are combinable because they are from the same field of endeavor, electrophotographic printing process.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the gamma correction data aspect of Fukui with the print system of Katakura.

The suggestion/motivation for doing so would have been to provide a way, by using gamma correction data, to print a document of constant gradation by controlling the density of an image (see column 2 lines 21-26 of Fukui).

Therefore, it would have been obvious to combine Fukui with Katakura to obtain the invention as specified in claims 2 and 6.

Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katakura as applied to claim 1 above, and further in view of Fukui and U.S. Patent No. 5771340 to Nakazato et al.

Katakura does not disclose expressly (*claim 3*) wherein compressed correction data is stored in said memory, said print controller has a decompressing circuit for decompressing the compressed correction data stored in said memory, and said print controller reads out the compressed correction data from said memory and decompresses it prior to the printing operation and transmits the decompressed correction data to said driving circuits, (*claim 4*) wherein said print controller has a compressing circuit for compressing the correction data to be stored into said memory

and, when the correction data is stored into said memory, the correction data is compressed by said compressing circuit and written into said memory.

Fukui discloses correction data being stored in memory (see column 6 lines 21-27) and print controller reads out the correction data from said memory and transmits the decompressed correction data to said driving circuits (see column 7 lines 24-59).

Fukui does not disclose expressly (*claim 3*) wherein compressed correction data is stored in said memory, said print controller has a decompressing circuit for decompressing the compressed correction data stored in said memory, and said print controller reads out the compressed correction data from said memory and decompresses it prior to the printing operation and transmits the decompressed correction data to said driving circuits, (*claim 4*) wherein said print controller has a compressing circuit for compressing the correction data to be stored into said memory and, when the correction data is stored into said memory, the correction data is compressed by said compressing circuit and written into said memory.

Nakazato discloses (*claim 3*) compressing data to be stored in memory (see column 4 lines 62-67), decompressing the compressed data stored in memory (see column 5 lines 1-9, reference teaches an expansion process of compressed data which is the same as decompressing the compressed data), and decompressed data is transmitted for actual printing (see column 5 lines 10-13), (*claim 4*) wherein data is compressed and stored in memory (see column 4 lines 61-67).

Katakura, Fukui & Nakazato are combinable because they are from the same field of endeavor, printing devices using stored data.



At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the compression/expansion method of Nakazato and the gamma correction data of Fukui with the print system of Katakura.

The suggestion/motivation for doing so would have been to provide compression of data to increase memory capacity and efficiency (see column 4 lines 66-67 of Nakazato) and use gamma correction data to print a document of constant gradation by controlling the density of an image (see column 2 lines 21-26 of Fukui).

Therefore, it would have been obvious to combine Nakazato with Fukui and Katakura to obtain the invention as specified in claims 3 and 4.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katakura as applied to claim 8 above, and further in view of Fukui and Nakazato.

Katakura discloses data which is stored in said memory, data read out from said memory and supplied to said driving circuits through said auxiliary memory and said print data lines (see column 2 line 29-column 3 line 23).

Katakura does not disclose expressly compressing circuit for compressing said correction data which is stored in said memory, and wherein said CPU decompresses said compressed correction data read out from said memory and supplies the decompressed data to said driving circuits through said auxiliary memory and said print data lines.

Fukui discloses correction data being stored in memory (see column 6 lines 21-27).

Fukui does not disclose expressly compressing and decompressing correction data.

Nakazato discloses compressing and decompressing correction data (see column 4 line 59-column 5 line 9).

Katakura, Fukui & Nakazato are combinable because they are from the same field of endeavor, printing devices using stored data.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the compression/expansion method of Nakazato and the gamma correction data of Fukui with the print system of Katakura.

The suggestion/motivation for doing so would have been to provide compression of data to increase memory capacity and efficiency (see column 4 lines 66-67 of Nakazato) and use gamma correction data to print a document of constant gradation by controlling the density of an image (see column 2 lines 21-26 of Fukui).

Therefore, it would have been obvious to combine Nakazato with Fukui and Katakura to obtain the invention as specified in claim 13.

Claims 9, 10, 12, and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katakura as applied to claim 8 above, and further in view of Fukui and U.S. Patent No. 5386539 to Nishi.

Katakura discloses (*claim 16*) said CPU transmits a permission signal to permit the driving of said driven elements to said driving circuits (see column 2 line 29-column 3 line 59).

Katakura does not disclose expressly (*claim 9*) wherein said memory has control terminals for controlling the operation of said memory and data input/output terminals, and said control terminals and said input/output terminals are connected to said control signal lines, respectively (*claim 10*) wherein said memory is subjected to an operation control for writing said correction data into said memory and reading out said correction data into said auxiliary memory by the control signals which are supplied from said control signal lines to said control terminals connected to said signal lines, (*claim 12*) wherein said memory is an EEPROM, (*claim 14*) wherein said memory has a data input terminal, a data output terminal, a selection terminal, and a clock terminal, and each of said control signal lines is connected to each of the terminal, (*claim 15*) wherein the control signal lines other than the control signal lines which are link-driven are connected to said selection terminal and said clock terminal of said memory, and (*claim 16*) wherein said memory further has a write inhibition terminal and when the driving of said driven elements is permitted by said permission signal, the writing operation to said memory is inhibited.

Fukui discloses correction data being stored in memory (see column 6 lines 21-27).

Fukui does not disclose expressly (*claim 9*) wherein said memory has control terminals for controlling the operation of said memory and data input/output terminals, and said control terminals and said input/output terminals are connected to said control signal lines (see column 3 lines 11-16), (*claim 10*) wherein said memory is subjected to an operation control for writing data into said memory and reading out data into said

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auxiliary memory by the control signals which are supplied from said control signal lines to said control terminals connected to said signal lines, (*claim 12*) wherein said memory is an EEPROM, (*claim 14*) wherein said memory has a data input terminal, a data output terminal, a selection terminal, and a clock terminal, and each of said control signal lines is connected to each of the terminal, (*claim 15*) wherein the control signal lines other than the control signal lines which are link-driven are connected to said selection terminal and said clock terminal of said memory, and (*claim 16*) wherein said memory further has a write inhibition terminal and when the driving of said driven elements is permitted by said permission signal, the writing operation to said memory is inhibited.

Nishi discloses (*claim 9*) wherein said memory has control terminals for controlling the operation of said memory and data input/output terminals, and said control terminals and said input/output terminals are connected to said control signal lines (see column 3 lines 11-16), (*claim 10*) wherein said memory is subjected to an operation control for writing data into said memory and reading out data into said auxiliary memory by the control signals which are supplied from said control signal lines to said control terminals connected to said signal lines (see column 3 lines 3-10 and 51-59 and column 4 lines 2-7), (*claim 12*) wherein said memory is an EEPROM (see column 2 lines 56-59 and column 3 lines 51-53), (*claim 14*) wherein said memory has a data input terminal, a data output terminal, a selection terminal, and a clock terminal, and each of said control signal lines is connected to each of the terminal (see column 3 lines 11-16 and line 51-column 4 line 16 and Fig. 1), (*claim 15*) wherein the control

signal lines other than the control signal lines which are link-driven are connected to said selection terminal and said clock terminal of said memory (see Fig. 1), and (*claim 16*) wherein said memory further has a write inhibition terminal (see column 3 lines 44-45), and when the driving of said driven elements is permitted by said permission signal, the writing operation to said memory is inhibited (see column 3 lines 35-50, reference teaches situation in which a write inhibit mode is executed).

Katakura, Fukui & Nishi are combinable because they are from the same problem solving area, memory storage and manipulation to execute desired functions.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the EEPROM and terminals, especially the write inhibit terminal, of Nishi and the correction data of Fukui with the print system of Katakura.

The suggestion/motivation for doing so would have been to provide a memory, EEPROM, which can be more easily written to or read from, because EEPROM can be erased by exposing to an electrical charge but retains contents when power is off, and a write inhibit terminal to inhibit writing to the memory while reading is taken place so as not to disrupt the current process or destroy data, and use gamma correction data to print a document of constant gradation by controlling the density of an image (see column 2 lines 21-26 of Fukui).

Therefore, it would have been obvious to combine Nishi with Fukui and Katakura to obtain the invention as specified in claims 9, 10, 12, and 14-16.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katakura as applied to claim 1 above, and further in view of U.S. Patent No. 5669720 to Negishi et al.

Katakura does not disclose expressly wherein said driven elements are thermal elements.

Negishi discloses wherein said driven elements are thermal elements (see column 4 lines 53-55, column 6 lines 10-15 and line 66-column 7 line 5).

Katakura & Negishi are combinable because they are from the same field of endeavor, printing devices containing a plurality of driven elements.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the thermal print head and corresponding thermal elements of Negishi with the print system of Katakura.

The suggestion/motivation for doing so would have been to use heat to transfer an image to paper instead of light.

Therefore, it would have been obvious to combine Negishi with Katakura to obtain the invention as specified in claim 7.

### ***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. To further show state of the art refer to U.S. Patent numbers 5734406 (Nakamura et al.), 5978009 (Fujikura), 5450208 (Murata), 5553202

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(Wakabayashi et al.), 5138310 (Hirane et al.), 5815025 (Kubota), 5539525 (Tanuma et al.), and 5142301 (Matsumoto).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark R. Milia whose telephone number is (703) 305-1900. The examiner can normally be reached M-F 8:00am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Coles can be reached at (703) 305-4712. The fax number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mark R. Milia  
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